Letter from the editors

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Abstract The editors of the *Lettera Matematica Internazionale Edition* introduce vol. 2, no. 4 and explain its scope and aims.

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1 Letter from the editors

Those who are accustomed to reading texts that explain the shape of the universe or the structure of the atom know well the importance of mathematics, but are sometimes amazed just the same at the interest aroused by a thought considered very abstract. And yet, according to the joking (but not altogether) words of a famous Italian astrophysicist, knowledge of matter itself—considered the most concrete and tangible thing in existence—with all the hypotheses relative to its constitution, are strongly

based on mental constructs. Livio Gratton wrote in a 1979 article:

It is still possible to “observe” electrons, protons and some particles, if their images are photographed in cloud chambers or in bubble chambers. But the other particles, with an extremely short average lifespan, leave no trace behind; the essence is deduced from the traces of other particles, or they appear as “peaks of resonance” ... for quarks there is not even this possibility; if one thinks carefully about it, a quark is a purely mental construct invented to represent certain properties of symmetry of the particle.

In short, matter is—intellectually speaking—one of the most abstract objects that there is.

The Centro PRISTEM has been doing its best, for years, to explain the meaning and interest of even abstract thought and making mathematics a subject that is fully active and comprehensible for society. This is shown by the fact that the *Lettera Matematica* has arrived at issue number 91 in its Italian edition and is now available in its international edition as well—an achievement that not all journals for scientific divulgation manage to obtain—and is also shown by the other initiatives we have organised over the years: journals, conferences, web sites.

Today we are proud of a new involvement in favour of the mathematical culture whose—now that it is over—we can be certain of. In collaboration with the group named “matematita” (the name in Italian is a play on the words of “matematica”, mathematics, and “matita”, pencil) of the Department of Mathematics of the University of Milan, active now in other universities as well, we organised an exhibition about mathematics entitled “MateinItaly, matematici alla scoperta del futuro” (MathinItaly,

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mathematicians in search of the future), which took place at the Milan Triennale Museum from 14 September to 23 November 2014. The idea of an exhibition about mathematics is not in itself entirely new. Twenty years or so ago in Italy there was a famous exhibition entitled “Oltre il compasso” (Beyond the compass). However, the project of transmitting visually and tactilely to interested—and not necessarily competent—spectators the cultural complexity of the form of mathematical thinking is still today an open challenge to be addressed with methods and means that are not clear and fixed.

We leave to others the task of saying whether, with what we have provided, we have been successful in reaching our aims, and return to the “more traditional” forms of communication, those of the *Lettera Matematica*. In this present issue the reader will find portraits of two leading figures in mathematical research who are not always well-known to the public at large but who were both engaged in civil and political activities in addition to mathematics. Alessandro Figà-Talamanca and Luigi Pepe present “Carlo Pucci, mathematician and citizen”, and Jérôme Auvinet describes “The networks at work in the causes of mathematician Charles-Ange Laisant”. Other contributions in the issue describe events in the life of other great mathematicians and physicists. In “Galileo in Padua: architecture, fortifications, mathematics and ‘practical science’”, Raffaele Pisano and Paolo Bussotti examine the work of the famous scientist from Pisa during his early years in Padua. Camilla Colombo and Mirko Diamanti trace the fascinating story of a polemic between Daniel Bernoulli and Jean Le Rond d’Alembert in “The smallpox vaccine: the dispute between Bernoulli and d’Alembert and the calculus of probabilities”. Massimo Falcioni and Angelo Vulpiani present “Ludwig Boltzmann: a tribute on his 170th birthday”. Other contributions presented here are by Luigi Calzavara, who provides a hypothesis about “Venice: the geometry of the origins”, and Costanza Larese, who examines “Robert Musil: mathematics as the audacity of pure *ratio*”. Finally, Rossana Tazzioli gives us her book review of *La patria ci vuole eroi. Matematici e vita politica nell’Italia del Risorgimento* by Umberto Bottazzini and Pietro Nastasi. Following in the footsteps of the exhibition “MateinItaly”, all of the articles included here invite us to reflect on new possibilities for presenting mathematics.

Renato Betti is a former professor of geometry at the Politecnico di Milano, where he is currently Adjunct Professor. His research concerns category theory and its applications to algebra and geometry. His recent publications include *La matematica come abitudine del pensiero. Le idee scientifiche di Pavel Florenskij* (Libri del Pristem, 2009). He is a member of the Accademia Nazionale Virgiliana in Mantua.

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topics related to fuzzy systems, giving the start, together with Aldo de Luca, to the theory of fuzziness measures. He has analysed several of the epistemological problems that arise in this context and, more recently, the relationship between scientific research and economic development. His publications include *Imagination and Rigor* (Springer, 2006), *Contro il declino* (co-authored with Pietro Greco, Codice edizioni, 2007), *Memoira e Progetto* (co-edited with Pietro Greco, Edizioni GEM, 2010).